B. AMENDMENTS TO CLAIMS

Please cancel Claims 1-16 and 22-47, add new Claims 53-57 and amend the claims as indicated hereinafter.

1-16. (CANCELED)

17. (CURRENTLY AMENDED) A method for adaptively assigning bits to channels of a discrete multi-channel modulation communications system, the method comprising:

re-assigning one or more bits from a first channel in a plurality of channels to a second channel in ~~a~~ the plurality of ~~channel,~~ channels, and re-assigning a first gain from the first channel to the second channel, if (i) a difference between a performance characteristic of the first channel and of the second channel will be reduced, and (ii) re-assigning the one or more bits from the first channel to the second channel will satisfy a bit constraint of the communications system; else

making a determination as to whether re-assigning a second gain from the first channel to the second channel will (i) reduce a difference between a performance characteristic of the first channel and of the second channel, and (ii)satisfy a gain constraint of the communications system.

18. (ORIGINAL) A method as recited in Claim 17, further comprising re-assigning one or more bits from the first channel to the second channel if a difference in a margin of the first channel and of the second channel will be reduced.

19. (ORIGINAL) A method as recited in 17, further comprising re-assigning the second gain from the first channel to the second channel in response to making the determination, without re-assigning a bit on the first channel or on the second channel.

20. (ORIGINAL) A method as recited in 17, further comprising selecting the first channel and the second channel based on the first channel having a margin value that is less than a lower threshold value, and the second channel having a margin value that exceeds an upper threshold value.

21. (ORIGINAL) A method as recited in 17, further comprising selecting the first channel and the second channel based on the first channel having a gain level that is less than a lower threshold value, and the second channel having a gain level exceeding an upper threshold value.

22-47. (CANCELED)

48. (CURRENTLY AMENDED) A computer-readable medium for adaptively assigning bits to channels of a discrete multi-channel modulation communications system, the computer-readable medium carrying instructions for performing the steps of:

re-assigning one or more bits from a first channel in a plurality of channels to a second channel in ~~a~~ the plurality of ~~channel,~~ channels, and re-assigning a first gain from the first channel to the second channel, if (i) a difference between a performance characteristic of the first channel and of the second channel will be reduced, and (ii) re-assigning the one or more bits from the first channel to the second channel will satisfy a bit constraint of the communications system; else

making a determination as to whether re-assigning a second gain from the first channel to the second channel will (i) reduce a difference between a performance characteristic of the first channel and of the second channel, and (ii)satisfy a gain constraint of the communications system.

49. (ORIGINAL) A computer-readable medium as recited in Claim 48, further carrying instructions for re-assigning one or more bits from the first channel to the second channel if a difference in a margin of the first channel and of the second channel will be reduced.

50. (ORIGINAL) A computer-readable medium as recited in Claim 48, further carrying instructions for re-assigning the second gain from the first channel to the second channel in response to making the determination, without re-assigning a bit on the first channel or on the second channel.

51. (ORIGINAL) A computer-readable medium as recited in Claim 48, further carrying instructions for selecting the first channel and the second channel based on the first channel having a margin value that is less than a lower threshold value, and the second channel having a margin value that exceeds an upper threshold value.

52. (ORIGINAL) A computer-readable medium as recited in Claim 48, further carrying instructions for selecting the first channel and the second channel based on the first channel having a gain level that is less than a lower threshold value, and the second channel having a gain level exceeding an upper threshold value.

53. (NEW) An apparatus for adaptively assigning bits to channels of a discrete multi-channel modulation communications system, the apparatus being configured to:

re-assign one or more bits from a first channel in a plurality of channels to a second channel in the plurality of channels, and re-assigning a first gain from the first channel to the second channel, if (i) a difference between a performance characteristic of the first channel and of the second channel will be reduced, and (ii) re-assigning the one or more bits from the first channel to the second channel will satisfy a bit constraint of the communications system; else

make a determination as to whether re-assigning a second gain from the first channel to the second channel will (i) reduce a difference between a performance characteristic of the first channel and of the second channel, and (ii)satisfy a gain constraint of the communications system.

54. (NEW) A method as recited in Claim 53, wherein the apparatus is further configured to re-assign one or more bits from the first channel to the second channel if a difference in a margin of the first channel and of the second channel will be reduced.

55. (NEW) A method as recited in 53, wherein the apparatus is further configured to re-assign the second gain from the first channel to the second channel in response to making the determination, without re-assigning a bit on the first channel or on the second channel.

56. (NEW) A method as recited in 53, wherein the apparatus is further configured to select the first channel and the second channel based on the first channel having a margin value that is less than a lower threshold value, and the second channel having a margin value that exceeds an upper threshold value.

57. (NEW) A method as recited in 53, wherein the apparatus is further configured to select the first channel and the second channel based on the first channel having a gain level that is less than a lower threshold value, and the second channel having a gain level exceeding an upper threshold value.